

Notice of Allowability

Application No.

10/799,504

Examiner

James S. Wozniak

Applicant(s)

SHLOMOT ET AL.

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/13/2005.
2. ☐ The allowed claim(s) is/are 1-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Response to Amendment

1. In response to the office action from 8/29/2005, the applicant has submitted a request for continued examination, filed 10/13/2005, amending claims 1, 8, and 15, while adding claims 22-23 and arguing to traverse the art rejection based on the limitation regarding the time warping of a reconstructed first speech frame and a second speech frame (*Amendment, pages 10-14*). In light of the applicant's arguments and for the reasons given below, claims 1-23 are allowable over the prior art of record.

Allowable Subject Matter

2. Claims 1-23 are allowable over the prior art of record.
3. The following is an examiner's statement of reasons for allowance:

With respect to **Claims 1, 8, and 15**, the prior art of record fails to explicitly teach or fairly suggest a method, system, or computer readable medium storing a program for recovering a lost speech frame and eliminating discontinuities between a reconstructed frame and properly received preceding speech frames by: reconstructing a first speech frame using a pitch track from a preceding speech frame if it is determined that the frame has not been properly received, obtaining a second speech frame that immediately follows the first frame, time-warping both the

reconstructed first frame and the second speech frame to coincide pitch cycle peaks of the frames while maintaining a frame boundary between the second frame and an immediately following third frame, and eliminating any further discontinuities between the first and second frames by performing an overlap-add operation utilizing the equation on page 9 of the specification, which fades-in the second speech frame while fading-out the first frame.

The dependent claims further limit allowable independent claims, and thus, are also allowable over the prior art of record.

Although Klejin (*U.S. Patent: 6,169,970*) teaches a frame shifting operation for pitch matching (*Col. 9, Line 57- Col. 10, Line 14*), Klejin does not teach coinciding pitch cycle peaks from successive speech frames by time-warping first and second frames. Rather, Klejin teaches time-shifting only one original speech signal in performing a pitch match with a past speech signal. Klejin also does not explicitly teach or fairly suggest the use of an overlap-add operation, frame reconstruction, or time-shifting method implementation in a frame recovery application. Additionally, the time shifting disclosed by Klejin differs from the time warping of the present invention in that the time shifting taught by Klejin shifts an entire speech segment in time by adding or removing speech data, while the time warping of the present invention involves “stretching” a pitch cycle peak in time by a delta factor (*specification, page 8*).

Gunduzhan et al (*U.S. Patent: 6,889,183*) teaches a means for reconstructing a speech frame from past speech data and overlap-adding a reconstructed frame (*Col. 4, Lines 9-23 and Col. 5, Lines 16-44*), but does not teach coinciding pitch cycle peaks from successive speech frames by time-warping first and second frames, nor maintaining a frame boundary between the second and third frames.

Other pertinent prior art:

Lindemann (*U.S. Patent: 6,111,183*)- teaches a method for time-aligning speech phrases by performing time-warping according to a positive cross-correlation between pitch and loudness curves of audio segments and overlap-adding adjacent phrase segments (*Col. 11, Lines 44-57 and Col. 4, Lines 49-58*), but does not teach coinciding pitch cycle peaks from successive speech frames in a time warping process, maintaining frame boundaries, or method implementation in a frame reconstruction application.

Coorman et al (*U.S. Patent Publication: 2002/0133334*)- teaches a means for time-modifying a speech waveform utilizing time warping for repositioning a speech frame and overlap-adding (*paragraph [008]*), but does not utilize pitch information in performing time-warping, fixed frame boundaries, or method implementation in a frame reconstruction application.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
11/16/2005


SUSAN MCFADDEN
PRIMARY EXAMINER